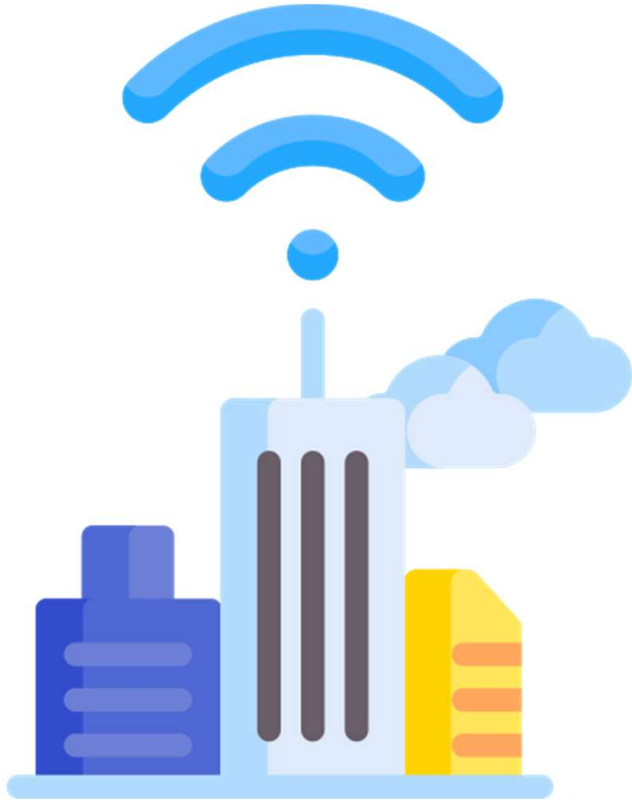


Internet of Things

an intro to the world of interconnected devices

What is IOT ?

The **Internet of Things** is a *system of interrelated computing devices* that are provided with unique identifiers (IP Address and Mac Address) with the *ability to transfer data over a network without requiring* ***human-to-human or human-to-computer interaction.***

Types

Other Definitions

- The **RFID group** defines IoT as “ *the worldwide network of interconnected objects uniquely addressable based on standard communication protocols* ”.
- According to The **Cluster of European research projects** “ *Things are active participants in business, information and social processes where they are enabled to interact and communicate themselves and with the environment by exchanging data and information sensed about the environment* ”.

Simply Explained

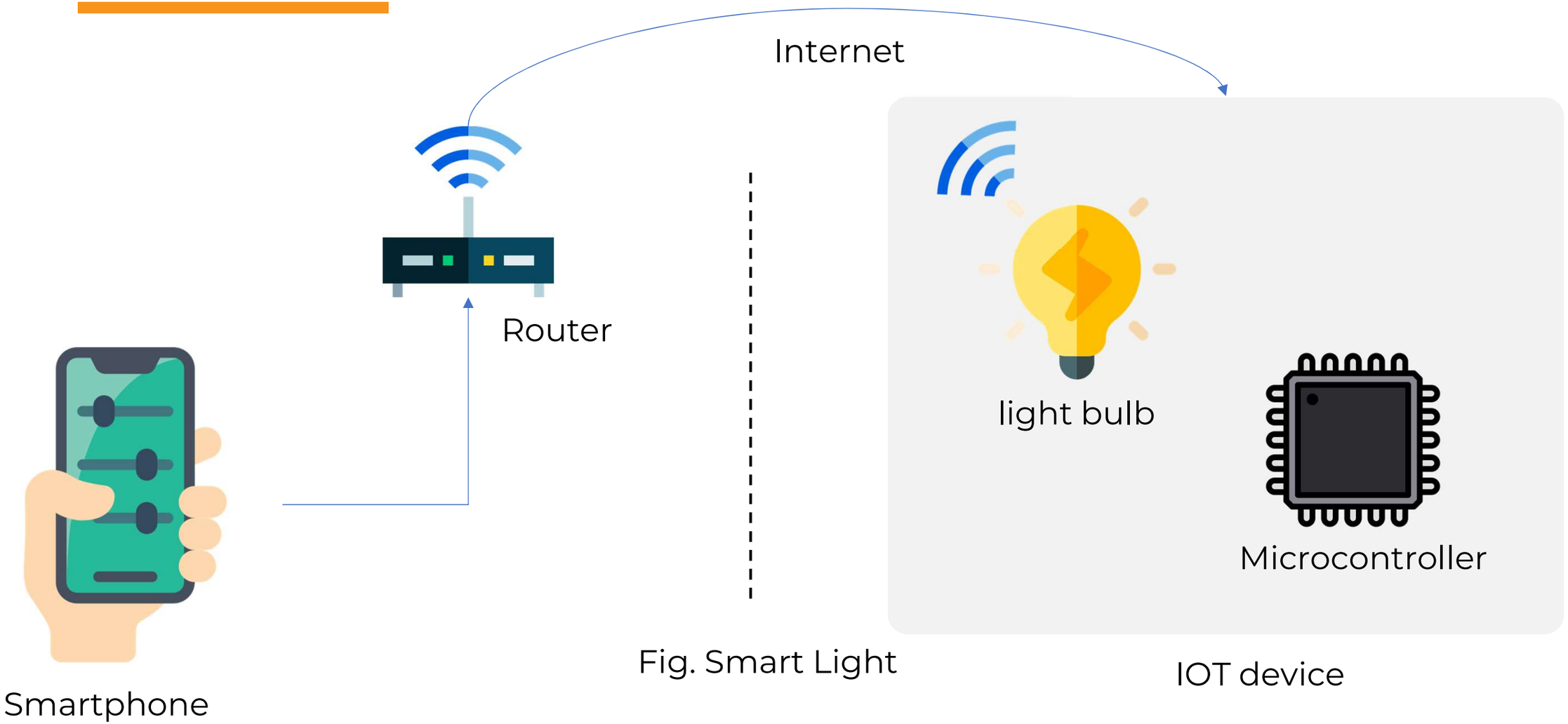
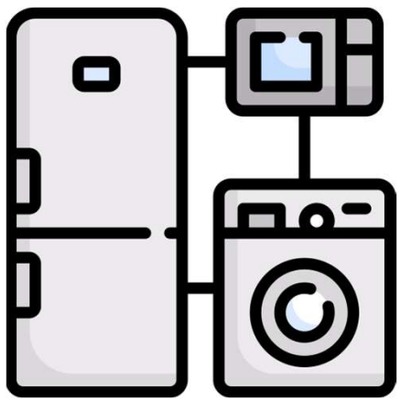


Fig. Smart Light

Why IOT ?

- **IoT** provides businesses with a real-time look into how their companies' systems really work, delivering insights into everything from the performance of machines to supply chain and logistics operations. **IoT** enables companies to automate processes and reduce labor costs.

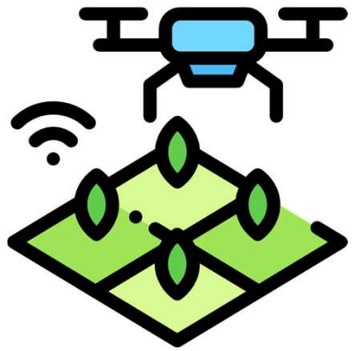
Applications



Smart Home

Smart
Wearables

Smart
Retail



Smart
Farms

etc.,

Industry 4.0

- **Industry 4.0** is the trend towards automation and data exchange in manufacturing technologies and processes which include cyber-physical systems (CPS), the internet of things (IoT), **industrial** internet of things (IIOT), cloud computing, cognitive computing and artificial intelligence.

How IOT works ?

- Sensors / Devices
- Connectivity
- Data Processing
- User Interface

Platforms

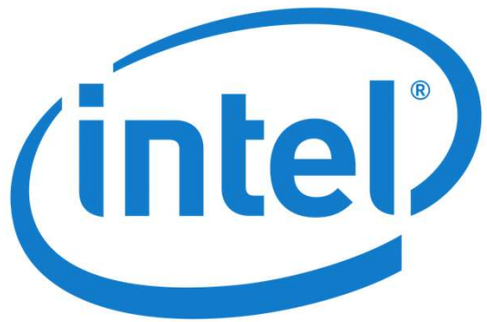

ARDUINO


adafruit


Raspberry Pi®


Qualcomm®
snapdragon


CISCO

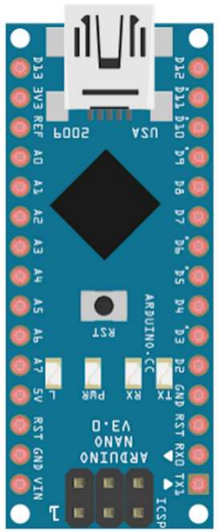

intel®

Arduino

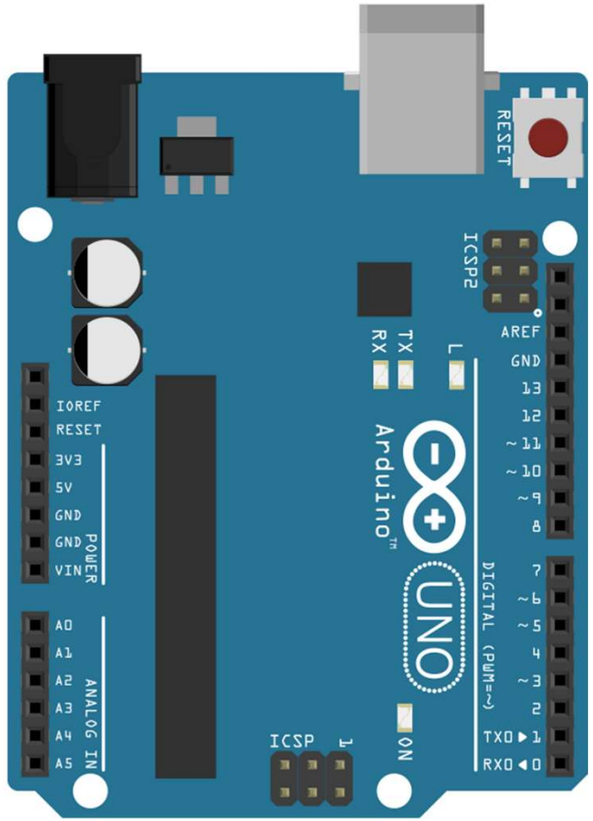
Open-source electronic prototyping platform enabling users to create interactive electronic objects.

Source : **https://www.arduino.cc/**

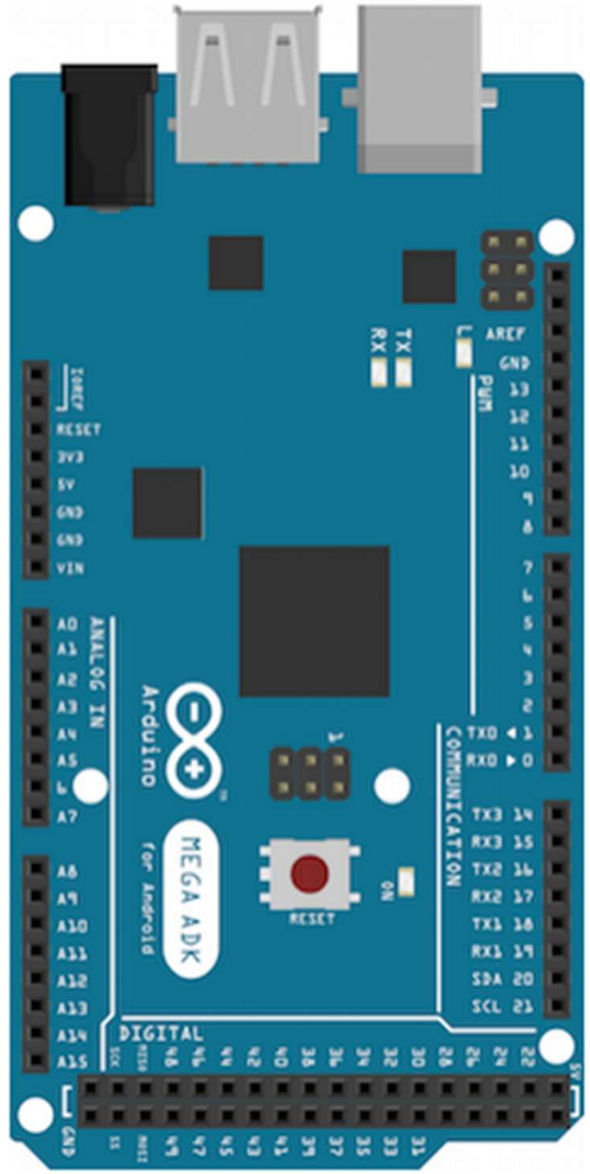
Arduino Boards



Arduino nano



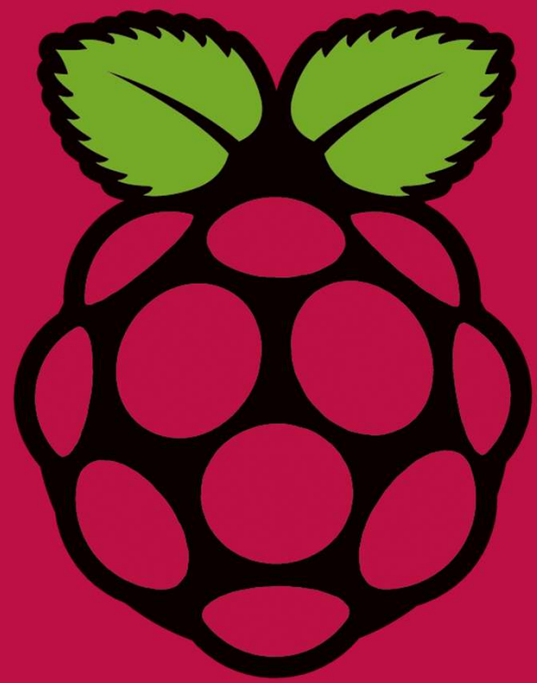
Arduino UNO



Arduino Mega

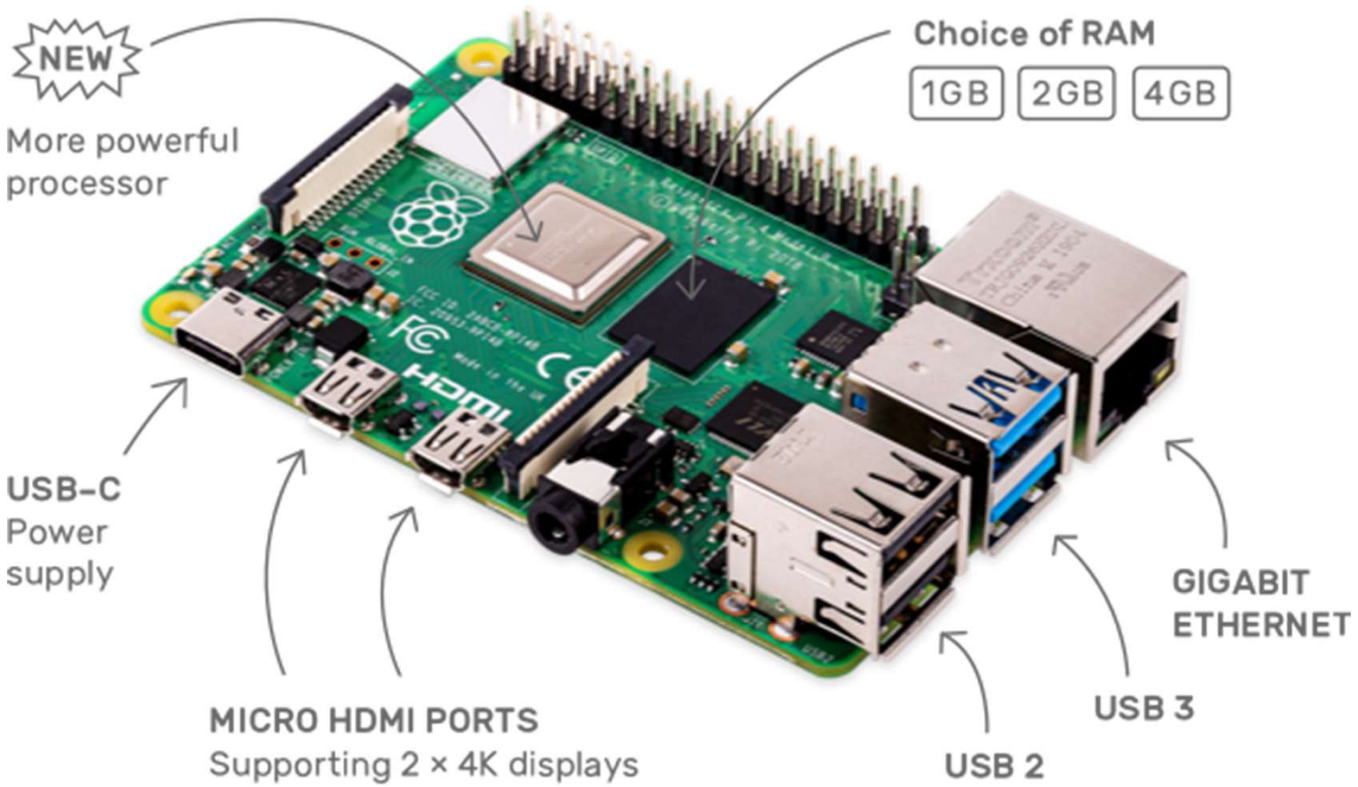
Raspberry Pi

The **Raspberry Pi** is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing.



Source : **https://www.raspberrypi.org/**

The Pi’ s anatomy



Official Accessories

Board Types

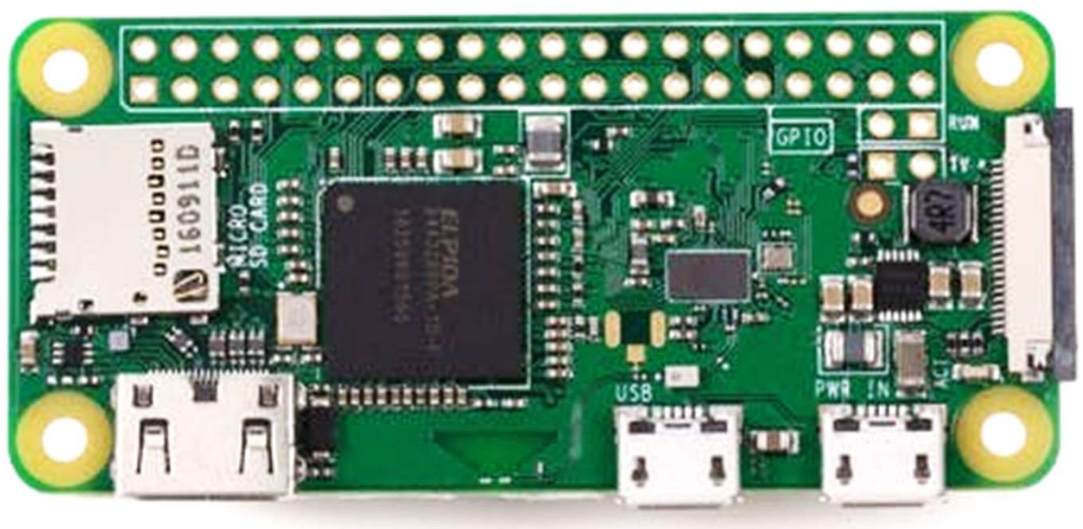


Fig. Pi Zero W

Board Types

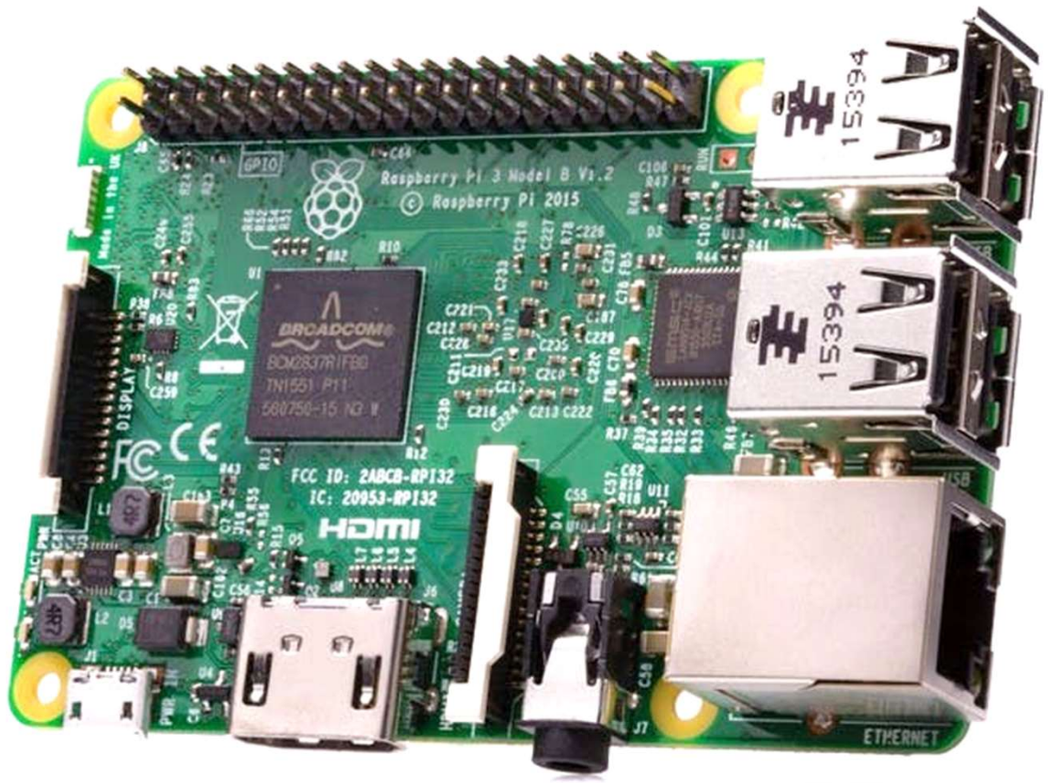


Fig. Pi 3 Model B

Board Types

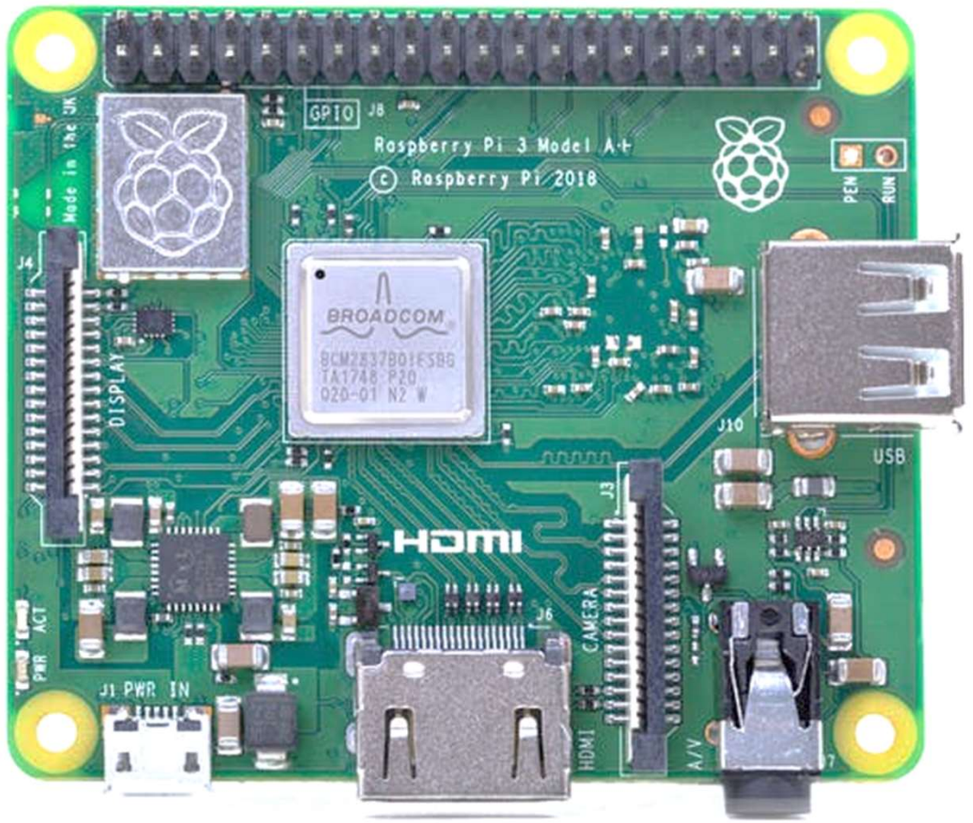
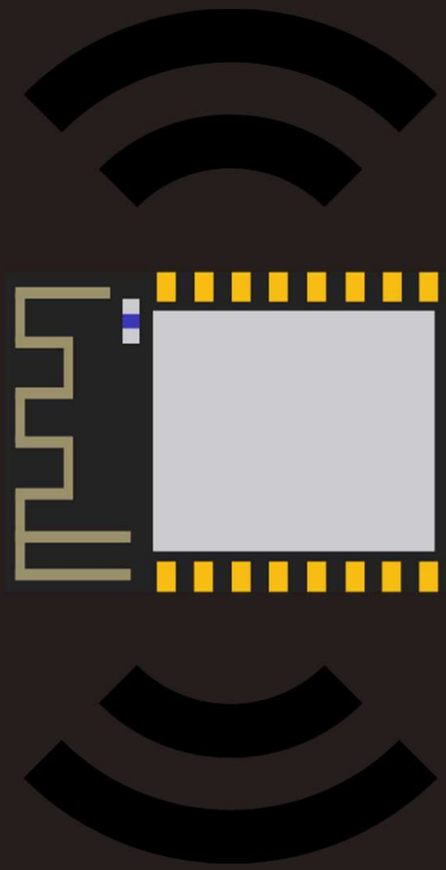


Fig. Pi 3 Model A+

Node MCU

NodeMCU is an open source IoT platform. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which is based on the ESP-12 module.



Source : **https://www.nodemcu.com**

Pinout

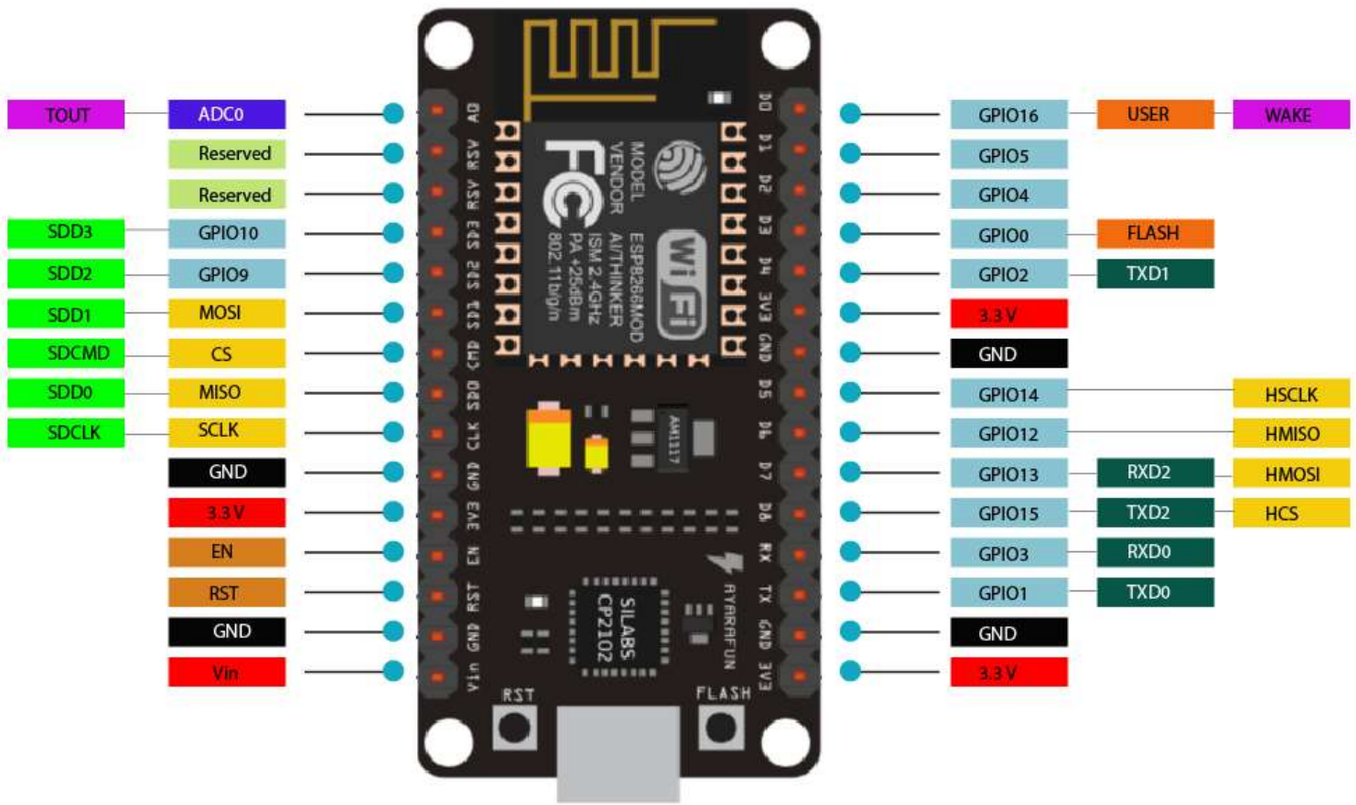


Fig. Node MCU Pinout